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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,870	02/11/2004	Juri Heinrich Krieger	H2016CIP	3885

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EXAMINER

PHAN, TRONG Q

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

31

Office Action Summary	Application No. 10/776,870	Applicant(s) KRIEGER ET AL.	
	Examiner TRONG PHAN	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 2 and 4-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: CONTROLLER 102 IN Fig. 1; E0 in Fig. 8. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature as recited in claim 8 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

Art Unit: 2827

prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because the current I in the vertical axis of Fig. 6 having m units (-8.0m, -4.0m, 0.0m, 4.0m and 8.0m) not ampere (A) as conventional. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the

Art Unit: 2827

remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1 and 18 are objected to because of the following informalities:

Claim 1, "a selective memory portion" (line 9) should be further defined in order to be readable on the respective drawings of the present invention; the characteristic of "a property" (line 11) is not defined.

Claim 18, "a selective memory portion" (line 9) should be further defined in order to be readable on the respective drawings of the present invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 4-8 and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Yang et al., 6,950,331.

Yang et al., 6,950,331, discloses in Fig. 4 a memory cell device 90 comprising:

Regarding claims 1-2 and 4:

electrical connection 78 which is read on the first electrode;

bistable body 72, having low resistance (impedance) state and a high resistance (impedance) state (see lines 33-36, column 2) indicative of information content (see lines 50-56, column 8) changing based on electron or hole transport material (see line 53, column 5) when subject to an external electric field (see lines 39-42, column 1), which is read on the functional layer;

electrical connection 78 which is read on the second electrode;

control unit 76, for providing voltage bias (see lines 48-50, column 6) and being capable of measuring current to determine the electrical resistance of the bistable body (see lines 52-54, column 1) or the threshold switching and memory phenomena (see lines 27-34, column 1), which is read on the control component comprising a comparator;

Regarding claim 5:

the impedance state of the bistable device representing "0" (bit) low conductive state and "1"(bit) high conductive state which are read on more than one bit of information.

Regarding claims 6 and 18-21:

light-emitting diode LED 74 may be made from any of the conventional material used in making LEDs (see lines 45-53, column 6);

Regarding claim 7:

bistable body 72 being the same as the bistable body as shown in Fig. 2

Art Unit: 2827

(see lines 47-48, column 6) comprising layers 30, 32 and 34 which are read on the passive layer, the active layer and the barrier layer, respectively;

Regarding claim 8:

electrical connections 78 and 80 providing electric current pulses for writing mode and reading mode in the memory device (see lines 50-56, column 8).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 9-17 and 22-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Bulovic et al., 6,781,868.

Bulovic et al., 6,781,868, discloses in Figs. 1-2 a memory cell comprising:

Regarding claims 9-11:

active layer 22 sandwiched between write electrodes A and D and read electrodes B and C;

external electric field E-Field;

wherein:

high impedance state (on state) and the low impedance state (off state) of the memory cell is switching when an applied external electric field exceeding a threshold value (see lines 43-48, column 4);

Art Unit: 2827

a read operation may be provided by measuring the impedance of the active layer 22 between read electrodes B and C (see lines 56-58, column 5), therefore, it must be an inherent measuring circuit to provide a comparison operation for the impedance of the memory cell such as the claimed comparing method;

Regarding claims 12 and 15:

a read operation provided by the measuring the impedance of the memory cell inherently resulting the removing the applied external electric field from the write electrodes A and D;

Regarding claim 13:

the switching time and the storage time of the memory cell (see lines 51-67, column 4) which are on the time duration;

Regarding claims 17 and 23:

an erasing operation provided by the applying an electric field having reverse polarity (see lines 46-55, column 5);

Regarding claim 22:

write electrodes A and D and read electrodes B and C and external electric field E-Field which are read on the means for regulating an impedance state of a memory cell;

the inherent measuring circuit to provide a comparison operation for the impedance of the memory cell which is read on the means for setting a program state based on the impedance state of the memory cell.

Response to Arguments

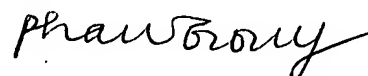
9. Applicant's arguments filed on 3/2/06 have been fully considered and are persuasive. Therefore, the last office action of 11/29/05 has been withdrawn.

However, upon further consideration and in view of newly discovered prior art of yang et al., 6,950,331, and Bulovic et al., 6,781,868, a new non-FINAL office action has been set forth as above.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRONG PHAN whose telephone number is (571) 272-1794. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMIR ZARABIAN can be reached on (571)272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**TRONG PHAN
PRIMARY EXAMINER**

Approved
TP
5/11/06

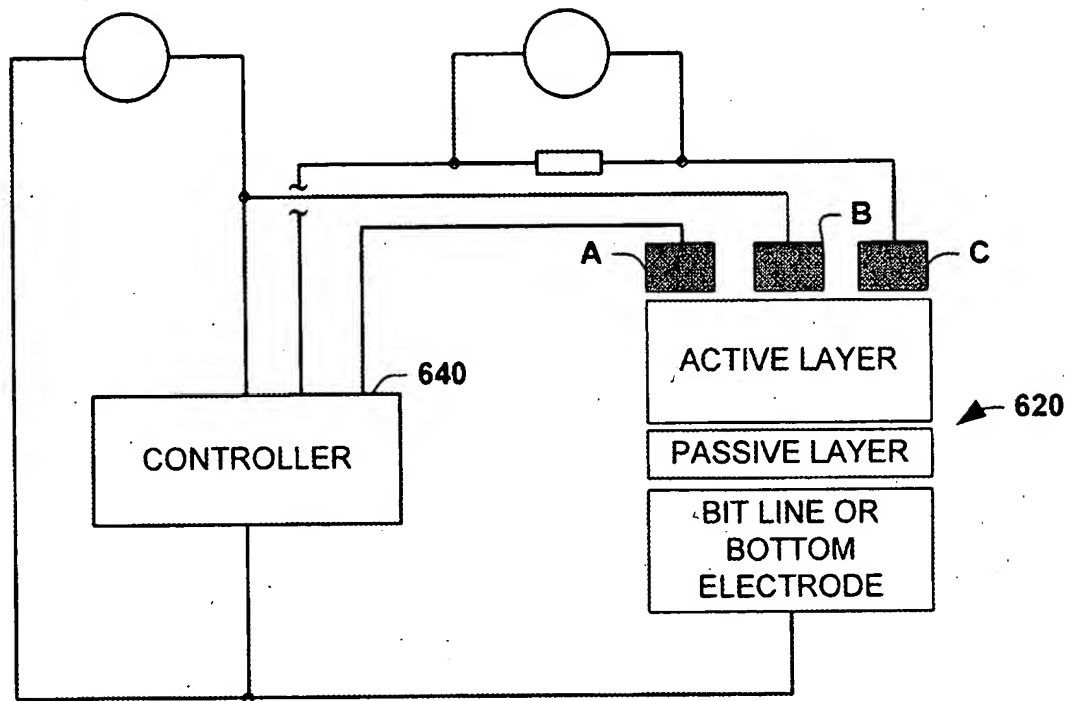


Fig. 6a